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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL R. BOYD, DAVID J. PAUL,
and SEAN C. SINOTTE

Appeal 2009-011567
Application 09/982,617
Technology Center 2400

Before MARC S. HOFF, CARLA M. KRIVAK,
and ELENI MANTIS MERCADER, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1, 2, 11, 12, 29-31, 36, and 37. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

INVENTION

Appellants' Figure 3 is reproduced below:

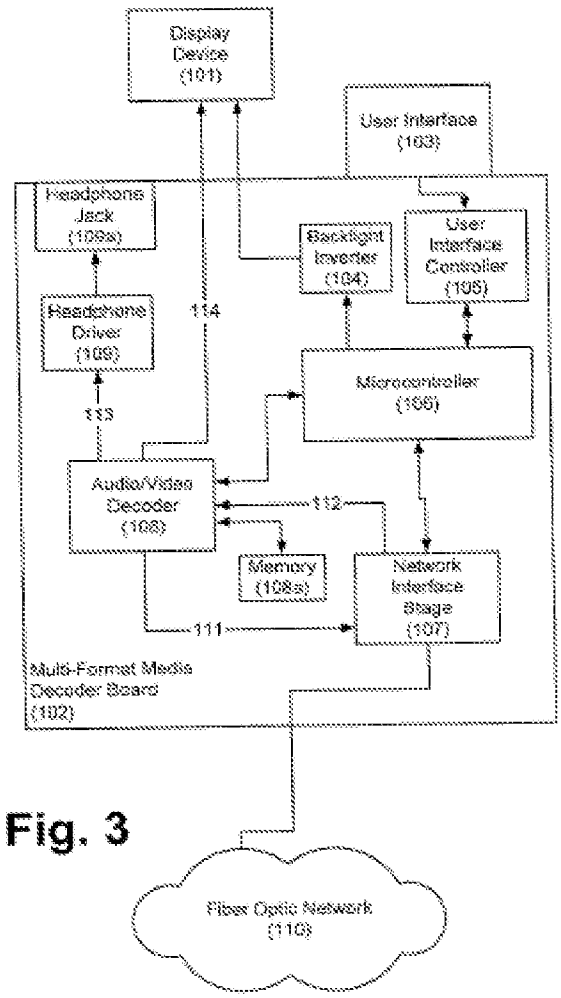

Fig. 3

Appellants' Figure 3 and claimed invention are directed to a multi-format decoder 108 for decoding data streams with different encoding formats for use by audiovisual output devices 109a, 101. The board 102 (indicated as a large rectangle in the middle of Figure 3 which includes elements 108 and 107) is connected to the optical network (110) through a network interface stage (107) which interfaces the optical digital signals on the network with the electrical circuitry of the board (102). The network interface stage (107) and the other electronics on the board (102) are controlled by a microcontroller or processor (106). *See* Figs. 2, 3; Spec. ¶¶ [15], [47].

Claim 1, reproduced below, is representative of the subject matter on appeal (emphases added):

1. A multi-format decoder board for decoding audiovisual data streams in a plurality of encoding formats for use by one or more audiovisual output devices, said decoder board comprising:

an interface stage for interfacing with a digital data network;

a multi-format decoder for decoding at least two different encoding formats for an audiovisual data stream;

a microcontroller for controlling said interface stage and said decoder; and

connections for connecting said decoder board to one or more audiovisual output devices.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Lotocky	US 5,848,367	Dec. 8, 1998
Lavelle	US 6,678,892 B1	Jan. 13, 2004 (filed Oct. 27, 2000)

The following rejections are before us for review:

1. The Examiner rejected claims 1, 11, 29, 30, and 36 under 35 U.S.C. § 102(e) as being anticipated by Lavelle.

2. The Examiner rejected claims 2, 12, 31, and 37 under 35 U.S.C. § 103(a) as being unpatentable over Lavelle.

Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

The pivotal issues are:

A. Whether Appellants have shown that the Examiner erred in finding that Lavelle discloses:

> (1) "*an interface stage*" (2) "for *interfacing* with" (3) "a *digital* data network"; and
>
> (4) "a microcontroller for controlling said interface stage and [a] decoder"

as recited in claim 1(emphases added).

B. Whether Appellants have shown that the Examiner erred in finding that Lavelle teaches a "digital data stream" as recited in claim 29.

C. Whether Appellants have shown that the Examiner erred in finding that Lavelle teaches the limitation of "interfacing said decoder board to a digital data network with an interface stage" as recited in claim 30.

D. Whether Appellants have shown that the Examiner erred in finding that *Lavelle as modified by the Examiner's Official Notice teaches the*

limitation of "an optical interface stage for interfacing said decoder board with a fiber optical network" as recited in claim 2 (emphasis added).

FINDINGS OF FACT

The following Findings of Fact are supported by a preponderance of the evidence:

1. Lavelle discloses connections (e.g., wires) between input devices (e.g., TV tuner 114, video cassette player 116, DVD 118, CD 120, and signal processing/conversion facilities 127) and buses 170, 172 (col. 4, l. 66 - col. 5, l. 7; col. 9, l. 60 - col. 10, l. 2; Figs. 1A, 1B). The signals pass from the input devices through the connections (e.g., wires) between the input devices and buses (*see* Figs. 1A, 1B). Lavelle's system can also include the input/output interfaces of the computer platform which can connect to the buses and the devices (col. 3, ll. 24-40).
2. Appellants' Specification discloses that "[t]he board (102) is connected to the network (110) through a network interface stage (107) which interfaces the optical digital signals on the network (110) with the electrical circuitry of the board (102)" (¶ [47]).
3. The term "interface" is defined, in pertinent part, as: "[a] common boundary - for example, physical connection between two systems or two devices." CHARLES J. SIPPL & DAVID A. KIDD, MICROCOMPUTER DICTIONARY AND GUIDE 168 (1975).
4. Appellants' Specification teaches that a microcontroller or a processor is used to control the network interface stage (¶ [47]).

5. Lavelle discloses that the buses 170, 172 can be a single wire that connects a plurality of devices (Fig. 1A; col. 9, ll. 60-66; col. 4, ll. 19-39).
6. Lavelle discloses that the buses can transmit signals, output from the digital sources such as a DVD player, to the signal processing/conversion facilities. The signal processing/conversion facilities can decode the digital signals and convert them from digital to analog (col. 6, ll. 9-42; col. 4, l. 67 - col. 5, l. 7).
7. Lavelle discloses buses transmitting audio and video signals with the signals being multiplexed with respect to codes (col. 9, ll. 62-66).
8. Code division multiple access (CDMA) is performed on digital networks. *See* ANDREW S. TANENBAUM, COMPUTER NETWORKS 271-74 (3d ed. 1996).
9. Lavelle discloses that the signal processing/conversion facilities 127 can perform signal coding for CDMA. The coded signal is then transferred on the bus network 172 to the wireless transmitter 510 (col. 7, ll. 10-12; Fig. 1B).
10. Lavelle discloses a computer platform having hardware, such as one or more central processing units, a random access memory, and input/output interface(s). The computer platform may also include an operating system and microinstruction code that can control the functions of the various devices, such as the signal processing/conversion facilities 127, buses 170, 172, and input devices 114, 116, . . . 126 (col. 3, ll. 25-49; Fig. 1A).
11. Lavelle's computer (col. 3, ll. 33-35) controls the input devices 114, 116, . . . 136 and signal processing/conversion facilities 127 (Fig. 1A),

thereby controlling the connections (e.g., wire) between the input devices and the signal processing/conversion facilities 127, and the buses 170, 172 (col. 6, ll. 20-42; Fig. 1A).

12. "Microcontroller" is defined in pertinent part as: "[a]nother all-purpose word, this can mean a microprogrammed machine, a microprocessor or a microcomputer used in a control operation - that is, to direct or make changes in a process or operation." SIPPL at 241.

13. Lotocky teaches that it was known at the time of the invention to utilize a fiber optic network (*see* Figs. 1, 2; col. 4, ll. 13-18) to distribute audio and video within a vehicle (col. 2, ll. 51-67).

PRINCIPLES OF LAW

> [T]he [US]PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.

In re Morris, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

> Although technical treatises and dictionaries fall within the category of extrinsic evidence, as they do not form a part of an integrated patent document, they are worthy of special note. Judges are free to consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents.

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1584 n.6 (Fed. Cir. 1996).

During examination of a patent application, a claim is given its broadest reasonable construction "'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (citation omitted). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted).

> The claims, of course, do not stand alone. Rather, they are part of "a fully integrated written instrument" consisting principally of a specification that concludes with the claims. For that reason, claims "must be read in view of the specification, of which they are a part." . . . [T]he specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term."

Id. at 1315 (citations omitted).

During ex parte prosecution, claims must be interpreted as broadly as their terms reasonably allow since Applicants have the power during the administrative process to amend the claims to avoid the prior art. *In re Zletz*, 893 F.2d 319, 322 (Fed. Cir. 1989).

"'The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.'" *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007)).

"[O]ne cannot show non-obviousness by attacking references individually where . . . the rejections are based on combinations of references." *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

ANALYSIS

Rejection under 35 U.S.C. § 102

A.(1) Does Lavelle disclose "an interface stage" as recited in claim 1?

Appellants argue (App. Br. 13-14; Reply Br. 2) that Lavelle does not disclose an interface stage for interfacing with a digital data network. Instead, Appellants assert Lavelle discloses the existence of "input/output (I/O) interface(s)" having no structure that supports any interface as connecting with any other component or system. Appellants also argue (App. Br. 14) that Lavelle uses the term "interface" without disclosing any connections.

The Examiner finds (Ans. 8), and we agree, that Lavelle discloses an interface stage that is the connections (such as wires) between all devices (e.g., TV tuner, video cassette player, DVD, CD, and signal processing/conversion facilities) and the buses. *See* FF 1. The signals pass from the devices through the connections (e.g., wires) (interface stage) between the devices and buses. *See* FF 1. Lavelle's interface stage also includes the input/output interfaces of the computer platform (Ans. 3, 8; FF 1).

We find that the broadest reasonable meaning of "interface stage" reads on Lavelle's connections. *See Morris*, 127 F.3d at 1054; *see also Vitronics*, 90 F.3d at 1584 n.6; *Zletz*, 893 F.2d at 322. A dictionary definition of "interface," in pertinent part, is: "[a] common boundary - for example, physical connection between two systems or two devices" (FF 3). Also, as the Examiner finds (Ans. 8), Appellants' Specification describes the interface stage as allowing connection between the decoder circuitry and the network (FF 2). Thus, the Examiner correctly interpreted the "interface

stage" as connections (i.e., wires) because Appellants' Specification is the single best guide to the meaning of a disputed term. *See Phillips*, 415 F.3d at 1315. Accordingly, consistent with the customary dictionary definition of "interface" and Appellants' Specification, Lavelle's connections (e.g., wires connecting between devices and the buses) constitute an "interface stage" because they physically connect and allow data to flow between the devices and the buses. Therefore, we agree with the Examiner's finding that "interface stage" reads on Lavelle's connections.

A.(2) Does Lavelle disclose "an interface stage for interfacing with a . . . data network" as recited in claim 1?

We give "interfacing" the same breadth as "interface," and thus the broadest reasonable interpretation of "interfacing" includes "connecting two systems or devices" (*see* FF 3). We find that the Examiner correctly interpreted the claimed "an interface stage for interfacing with a . . . data network" to read on Lavelle's connections (e.g., wires) that connect devices to the bus networks. *See Morris*, 127 F.3d at 1054.

A.(3) Does Lavelle disclose a "digital data network" as recited in claim 1?

Appellants argue (App. Br. 14-15; Reply Br. 2-4) that Lavelle's separate video bus and audio bus are contemplated as analog, not digital. Appellants assert (Reply Br. 3) that although CDs and DVDs are digital devices, their signal will be converted to analog and transmitted over the bus. Appellants contend (Reply Br. 3) that although Lavelle discloses digital to analog conversion at the signal processing facilities, this conversion has nothing to do with a "digital data network." Appellants also assert (Reply Br. 3) that Lavelle discloses that the analog signal is routed through the analog bus, run through an analog to digital converter, processed in a

manner such as filtering, and then converted back from digital to analog to be routed back into the analog network.

The Examiner finds (Ans. 7-8), and we agree, that Lavelle's buses are a network because Lavelle's buses can be a single wire that connects a plurality of devices (FF 5). Furthermore, the Examiner finds (Ans. 9-10) that Lavelle discloses that the buses will transmit digital signals because digital output from the digital sources, such as a DVD player, can be transmitted to the signal processing/conversion facilities (FF 1, 6). There the digital signals can be decoded and converted from digital to analog (FF 6). We are persuaded by the Examiner's reasoning because it is inherent that digital devices, such as Lavelle's DVD and CD player, will output digital signals (*see* FF 6).

Further support that Lavelle's network is digital is evidenced by Lavelle's disclosure that the signals on the bus are multiplexed with respect to codes (FF 7). Code multiplexing is performed on a "digital" network (FF 8). Additionally, Lavelle's signal processing/conversion facilities 127 perform CDMA coding (i.e., digital code multiplexing) where digital signals are transferred on the bus network to the wireless transmitter (FF 9).

We are not persuaded by Appellants' assertion (Reply Br. 3) that although CDs and DVDs are digital devices, their signal will be converted to analog and transmitted over the bus, because Appellants do not provide any evidentiary support for such an assertion.

For these reasons, we find that the claimed "digital data network" reads on Lavelle's digital bus/network.

A.(4) Does Lavelle disclose "a microcontroller for controlling said interface stage and said decoder" as recited in claim 1?

Appellants argue (App. Br. 15-16; Reply Br. 4) that Lavelle fails to disclose "a microcontroller for controlling said interface stage and said decoder."

First, Appellants contend (Reply Br. 4) that Lavelle does not discuss a "microcontroller." The Examiner finds (Ans. 3, 10), and we agree, that given the broadest reasonable interpretation the claimed "microcontroller" reads on Lavelle's computer platform. *See Morris*, 127 F.3d at 1054; *see also Vitronics*, 90 F.3d at 1584 n.6. "Microcontroller" is defined in pertinent part as: "[a]nother all-purpose word, this can mean a microprogrammed machine, a microprocessor or a microcomputer used in a control operation - that is, to direct or make changes in a process or operation" (FF 12). Therefore, since Lavelle's various processes and functions can be part of code running on Lavelle's computer platform, Lavelle's computer platform can be considered a microcomputer used in a control operation (i.e., a microcontroller). Furthermore, the Specification states either a microcontroller or a processor can be used (*see* FF 4). Lavelle's computer platform includes a processor (FF 10). Therefore, the claimed "microcontroller" reads on Lavelle's computer platform.

Second, Appellants contend (App. Br. 16; Reply Br. 4) that Lavelle does not teach that a microcontroller controls the interface stage or the decoder. Lavelle merely discloses that his invention may include a CPU.

We are persuaded by the Examiner's explaination (Ans. 10) that Lavelle discloses the system may be implemented on a computer platform including a CPU, RAM, and operating system (FF 10). The Examiner reasons the CPU powers the operating system that controls the execution of

the individual elements of the system, such elements as the "interface stage" and "digital data network." Lavelle's computer (microcontroller) controls the devices, thereby controlling the connections (interface stage) (e.g., wire) between the devices and the buses (FF 11).

According to Appellants' Specification paragraph [50], "[u]nder the control of the microcontroller (106), the network interface stage (107) outputs audiovisual data (112) to a multi-format audio/video decoder (108)." Similarly, we find that Lavelle teaches (FF 11) that under the control of the computer (microcontroller), the input devices and the connections (interface stage) output audiovisual data to the signal/processing conversion facilities (multi-format audio/video decoder). Therefore, we find Lavelle meets the claim limitation of "a microcontroller for controlling said interface stage and said decoder."

Thus, for the reasons set forth above in sections A.(1), A.(2), A.(3), and A.(4), we will sustain the Examiner's rejection of claim 1. We will also sustain the rejection of claims 11 and 36, which have limitations similar limitations to claim 1 and which no additional arguments of patentability are presented.

B. Does Lavelle teach a "digital data stream" as recited in claim 29?

Appellants argue (App. Br. 16; Reply Br. 5) that independent claim 29's limitation, "digital data stream," is not shown in Lavelle because Lavelle only discloses an analog data network as discussed in detail above with respect to claims 1, 11, and 36. Appellants further argue (App. Br. 16) that Lavelle's "different encoding formats" do not disclose a "digital data network."

We are not persuaded by Appellants' arguments. We agree with the Examiner's reasoning (Ans. 10-11) as discussed above in section A.(3). We find that Lavelle's network transmits a digital data stream and is not limited to analog data (*see* FF 6-9). Thus, for the reasons set forth above, we will sustain the Examiner's rejection of claim 29.

C. Does Lavelle teach the limitation of "interfacing said decoder board to a digital data network with an interface stage" as recited in claim 30?

Appellants argue (App. Br. 17) that Lavelle does not disclose "a digital data network" and "a digital data network with an interface stage" as discussed above in the arguments for claim 1.

For the same reasons as articulated *supra* in sections A.(1), A.(2), A.(3), and A.(4), we will also sustain the Examiner's rejection of claim 30.

Rejection under 35 U.S.C. § 103

D. Does Lavelle as modified by the Examiner's Official Notice teach the limitation of "an optical interface stage for interfacing said decoder board with a fiber optical network" as recited in claim 2?

The Examiner finds that Lavelle discloses "an interface stage for interfacing said decoder board with a *digital data* network," but not a "*fiber optical* network" (Ans. 7, emphases added). The Examiner finds (Ans. 11) that Lavelle discloses other bus types and signal transmission means can be used, and reasons that corresponding interfaces with the particular bus may be utilized to allow communication. The Examiner takes Official Notice (Ans. 7) that it was well known at the time of the invention to utilize fiber optic lines for a network of interconnected devices. The Examiner cited Lotocky (Ans. 7) for teaching it was known at the time of invention to utilize a fiber optic network to distribute audio and video signals within a vehicle

(FF 13). Appellants do not traverse the Official Notice (App. Br. 17-18; Reply Br. 5-6). Therefore, the Official Notice is admitted into evidence.

Appellants argue (Reply Br. 6) that the combination of Lavelle with Lotocky is not proper because Lotocky does not show a fiber optic network interfacing with a decoder board. We do not find this persuasive because one cannot show non-obviousness by attacking references individually (i.e., Lavelle does not teach a fiber optic network for distributing audio and video signals) where the rejections are based on a combination of references (i.e., the official notice as substantiated by Lotocky teaches a fiber optic network for distributing audio and video signals). *See In re Keller*, 642 F.2d at 426.

Appellants argue (Reply Br. 6) that there is no motivation to modify Lavelle as Lavelle would not receive the benefits of fiber optics because of Lavelle's small scale. The Examiner finds (Ans. 13), and we agree that not all the benefits of fiber optics are related to the size of the network. For example, the benefit of increased bandwidth is related to the amount of data flowing on the network, not the size of the network. Therefore Lavelle's system could benefit by substituting Lotocky's fiber optic network for the digital network.

We find that the modification of Lavelle to utilize a known fiber optic network and a corresponding optical connection/interface for allowing communication with the fiber optic network would have been within the skill and knowledge of one of ordinary skill in the art. The combination of familiar elements (i.e., combining Lavelle's system with a digital network and a well-known fiber optic network) according to known methods (i.e., replacing electronic network components with fiber optic network components) is likely to be obvious when it does no more than yield

predictable results (i.e., resulting in Lavelle's system being connected to a fiber optic network). *See Leapfrog*, 485 F.3d at 1161. Thus, we will sustain the Examiner's rejection of claim 2, and of claims 12, 31, and 37 which have limitations similar to claim 2 and which no additional arguments for patentability are made.

CONCLUSIONS

A. Appellants have not persuaded us of error in the Examiner's findings that Lavelle discloses:

> (1) "*an interface stage*" (2) "for *interfacing* with" (3) "a digital data network"; and
>
> (4) "a microcontroller for controlling said interface stage and [a] decoder"

as recited in claim 1 (emphases added).

B. Appellants have not persuaded us of error in the Examiner's findings that Lavelle teaches a "digital data stream" as recited in claim 29.

C. Appellants have not persuaded us of error in the Examiner's finding that Lavelle teaches the limitation of "interfacing said decoder board to a digital data network with an interface stage" as recited in claim 30.

D. Appellants have not persuaded us of error in the Examiner's findings that *Lavelle as modified by the Examiner's Official Notice teaches the limitation of "an optical interface stage for interfacing said decoder board with a fiber optical network"* as recited in claim 2 (emphasis added).

ORDER

The decision of the Examiner to reject claims 1, 2, 11, 12, 29-31, 36, and 37 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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